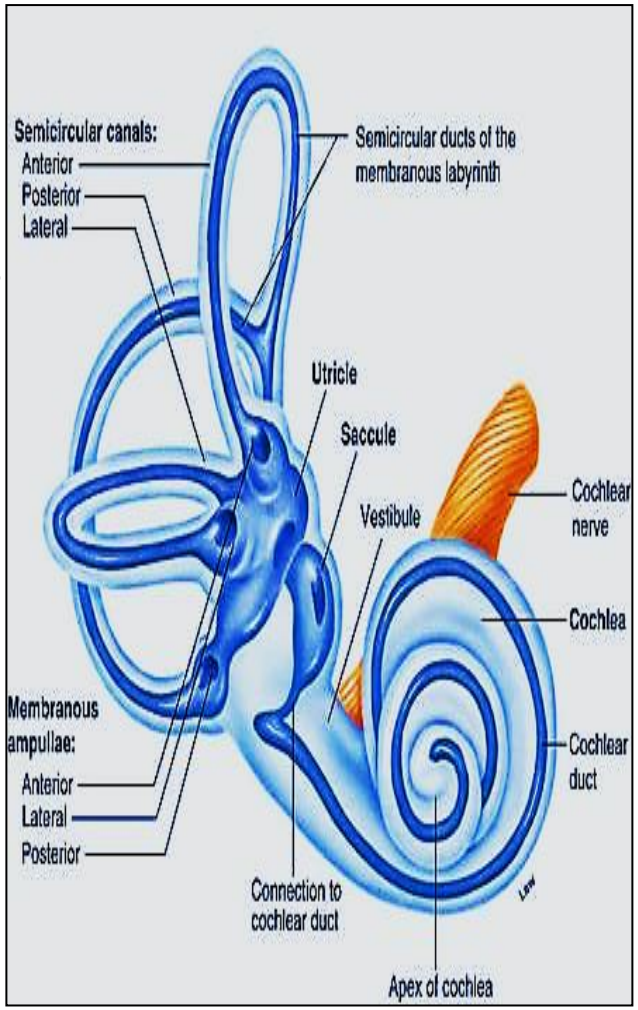
The Semicircular canals

- 3 canals, open into the utricle of the vestibule by 5 openings as 2 of them share one open.

- The membranous labyrinth inside the canals take the same shape, & is called the semicircular ducts

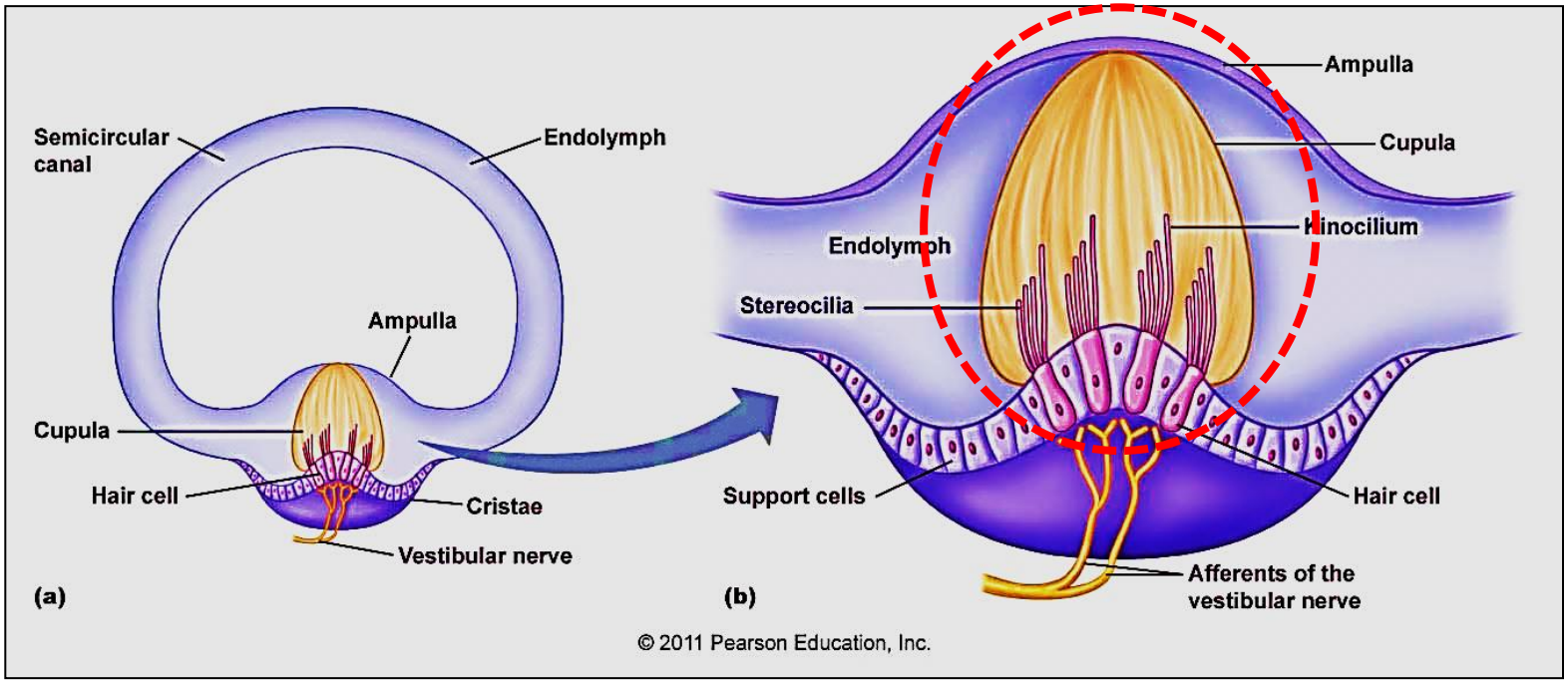
- Each duct has one expanded end called ampulla which contains the neuroepithelial structure Called **Crista ampullaris (3/ ear)**



Structure of Crista ampullaris

- Each crista is projects from the inner wall of each ampulla

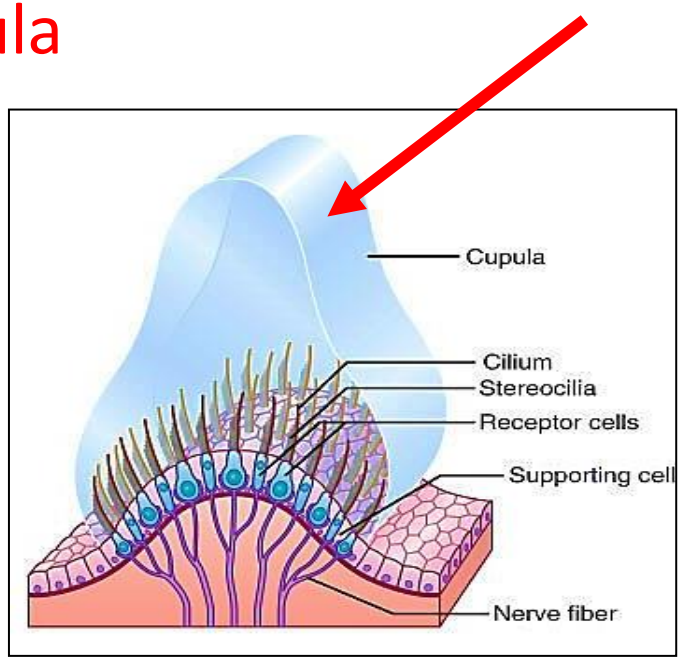
- Each crista has 2 types of cells: hair cells & supporting cells



The hair cells of crista ampullaris: 2 types

- Type I (flask- shaped) & Type II (columnar) cells
- Their bases surrounded with afferent fibers of vestibular nerve

Both types have stereocilia and kioncilium embedded in gelatinous membrane called Cupula



Cupula : glycoprotein Cap

without Ca^{+} carbonate crystals

Detect angular acceleration (rotation) of head

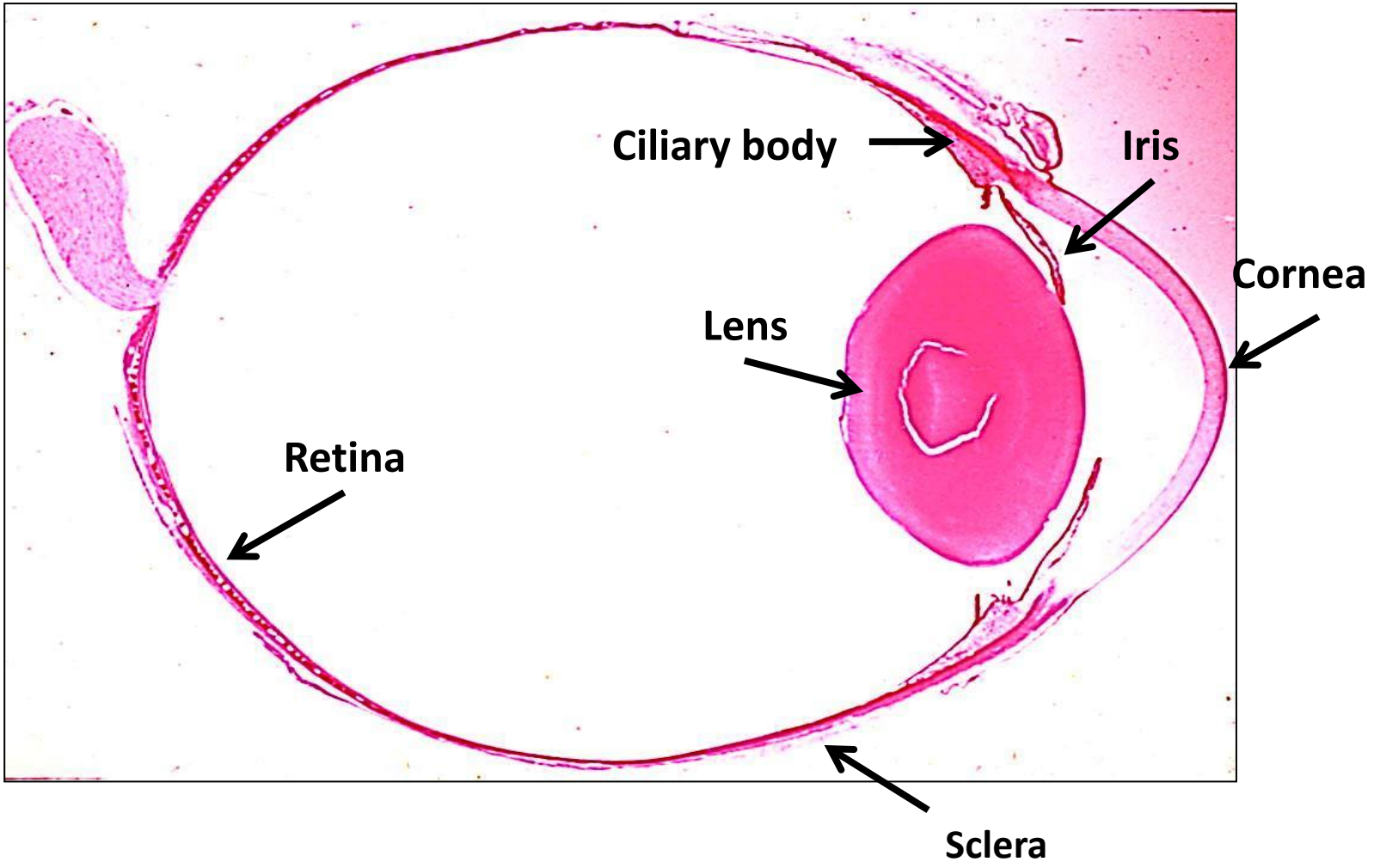
Histology Practical slides
3rd year/ 2022

PNS module

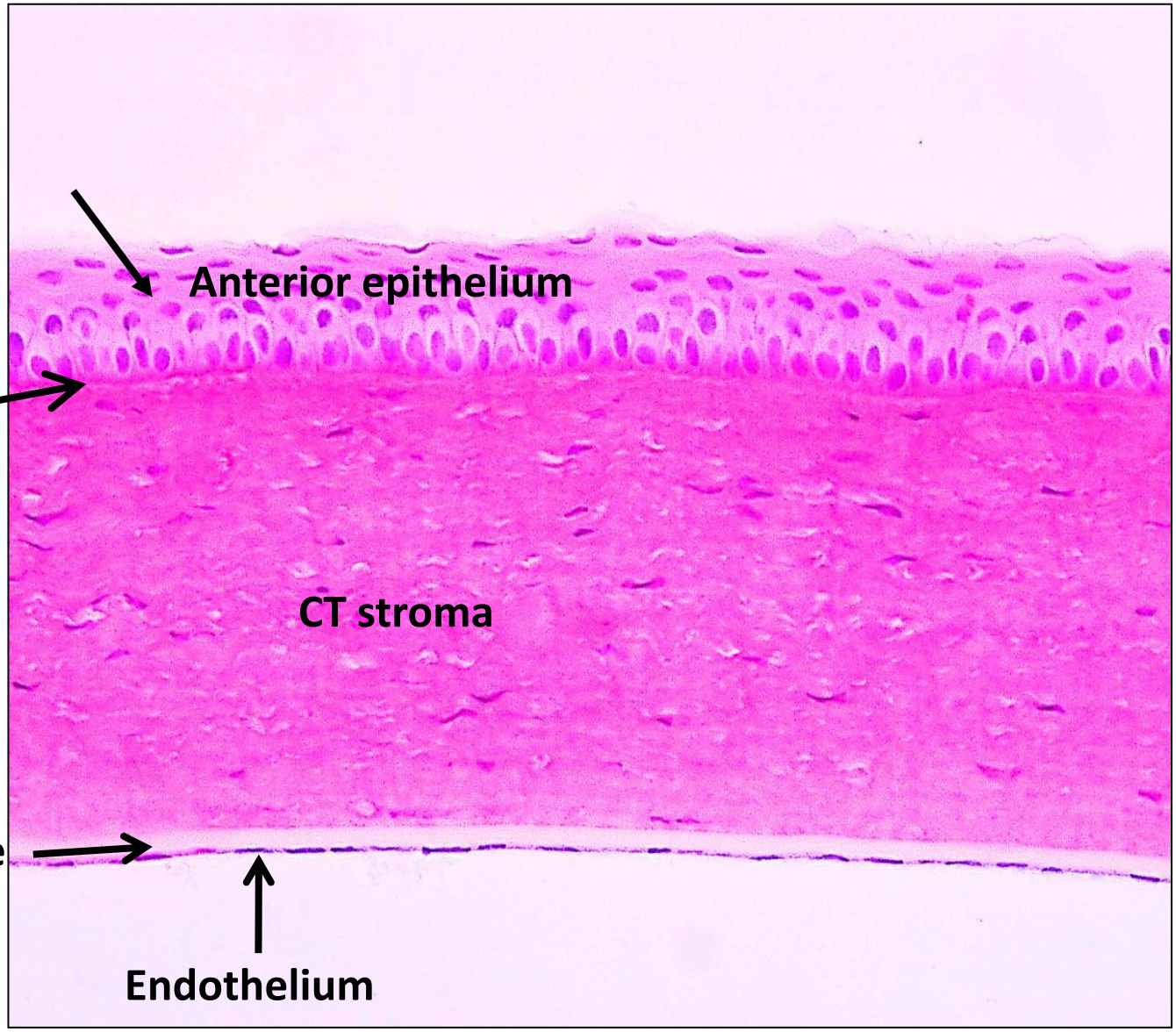
The assigned slides:

1. The eye ball - The cornea - The retina
2. The cochlea (ear)
3. The spinal ganglion (H&E)
4. The spinal ganglion (sliver)
5. The sympathetic ganglion (H&E)
6. The sympathetic ganglion (sliver)
7. The nerve trunk (H&E)
8. The nerve trunk (osmic acid)
9. Pacinian corpuscle in pancreas
10. Messiener’s corpuscles in skin

H&E) (The eye ball)



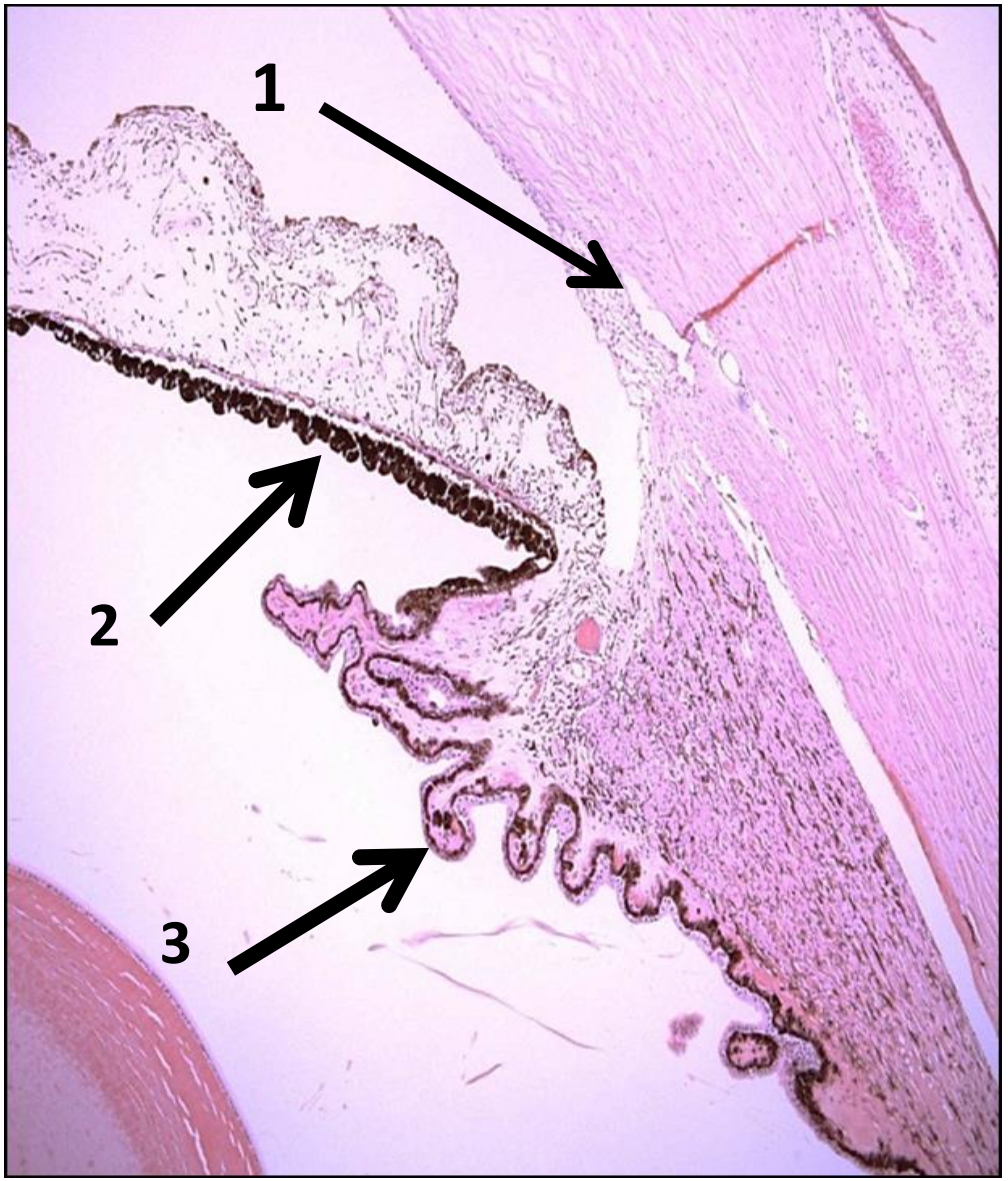
The cornea (H&E)



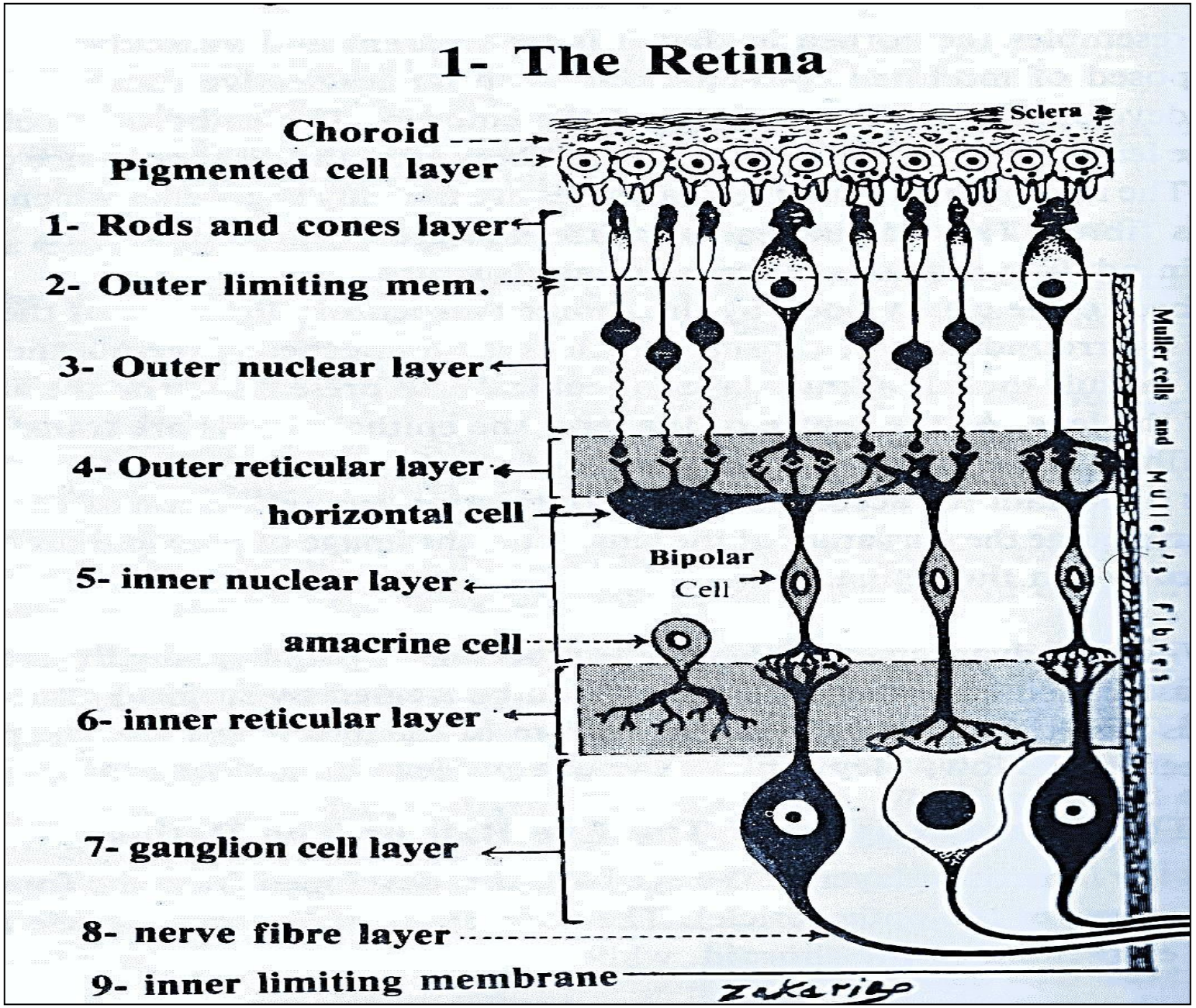
1- Canal of Schlemm

2- Pigmented epithelium of lower surface of iris

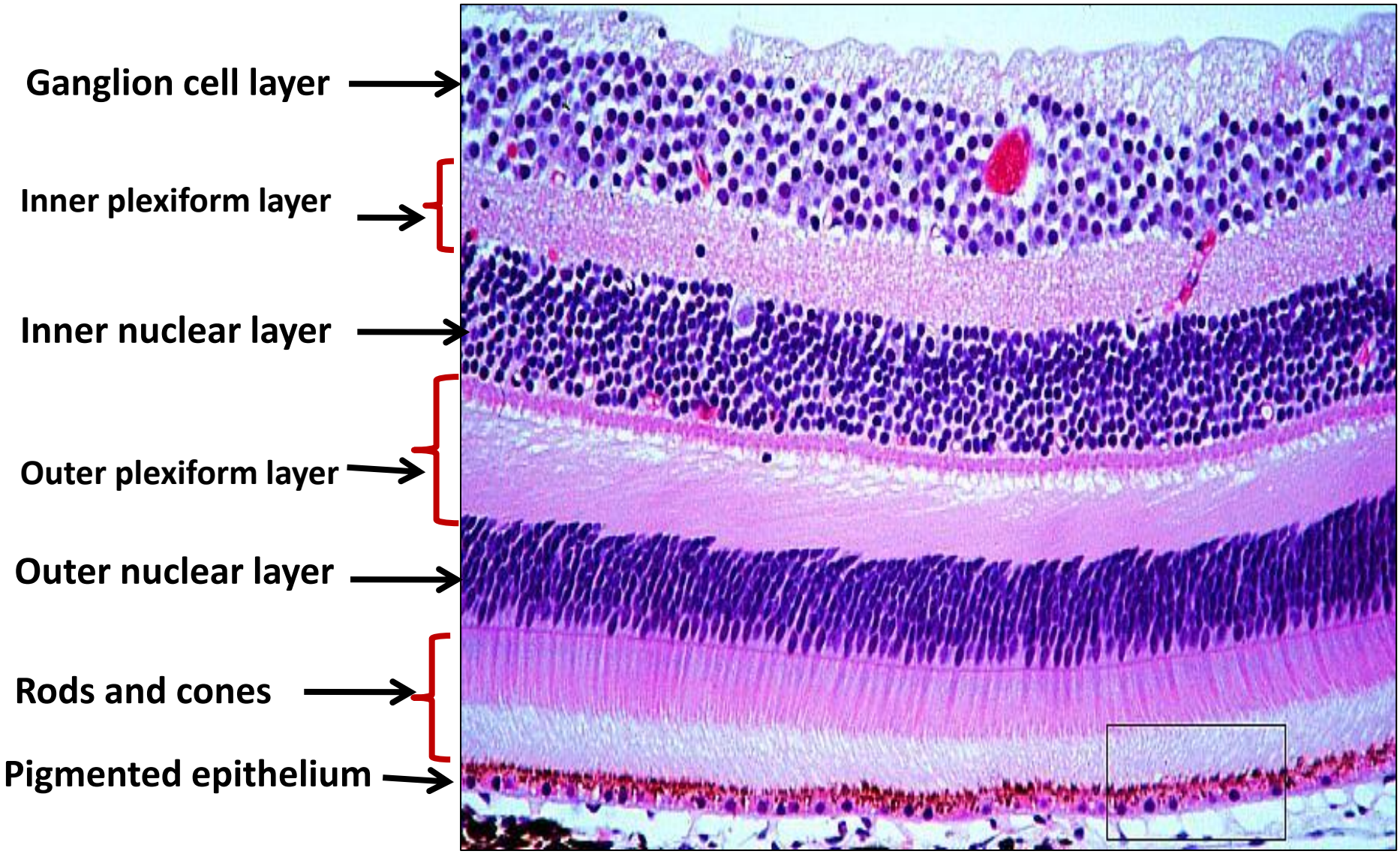
3- Ciliary process



1- The Retina

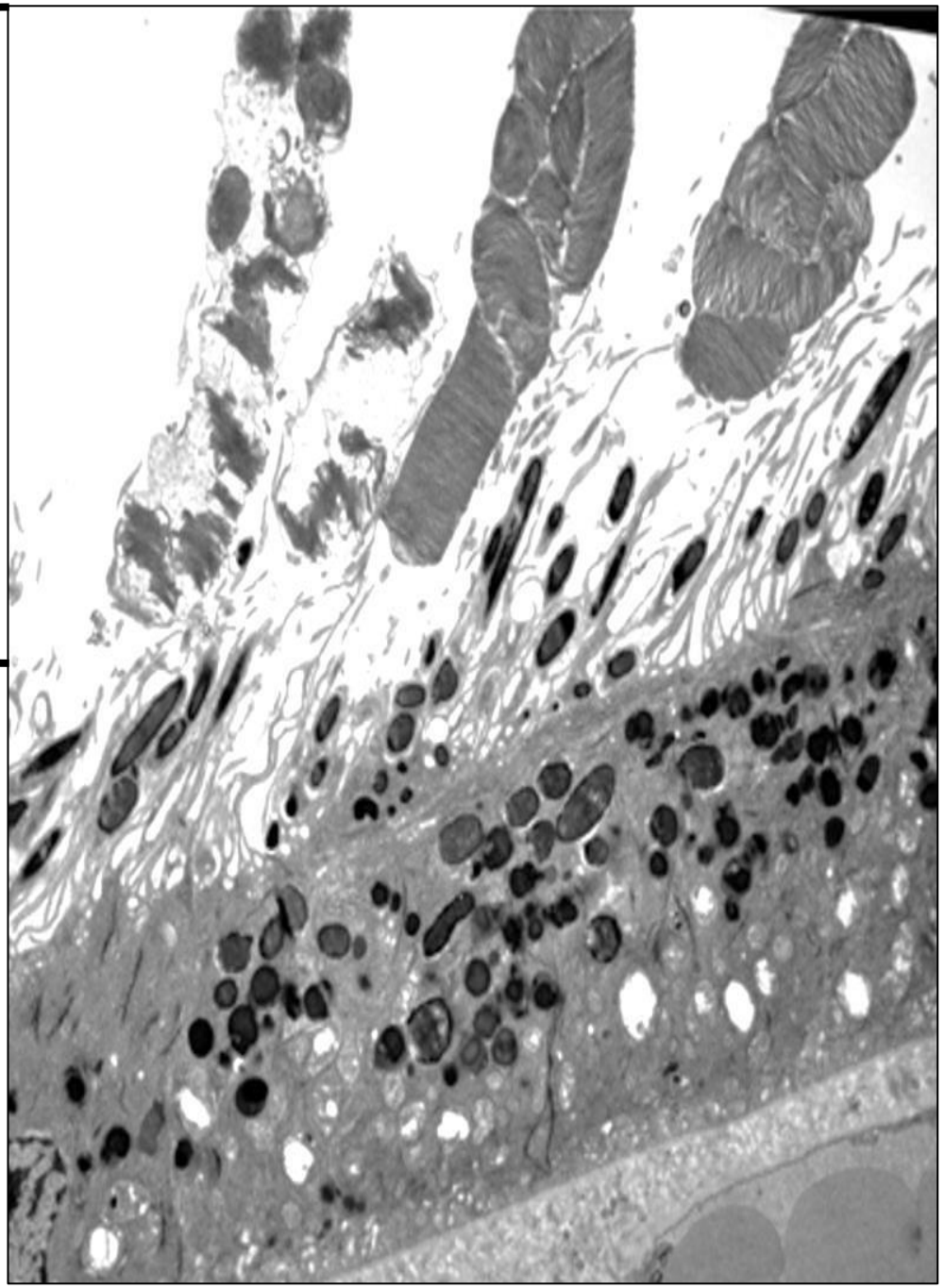

Sclera
Choroid
Pigmented cell layer
1- Rods and cones layer
2- Outer limiting mem.
3- Outer nuclear layer
4- Outer reticular layer
horizontal cell
Bipolar Cell
5- inner nuclear layer
amacrine cell
6- inner reticular layer
7- ganglion cell layer
8- nerve fibre layer
9- inner limiting membrane
Muller cells and Muller's Fibres
Zakaria

The retina (H&E)

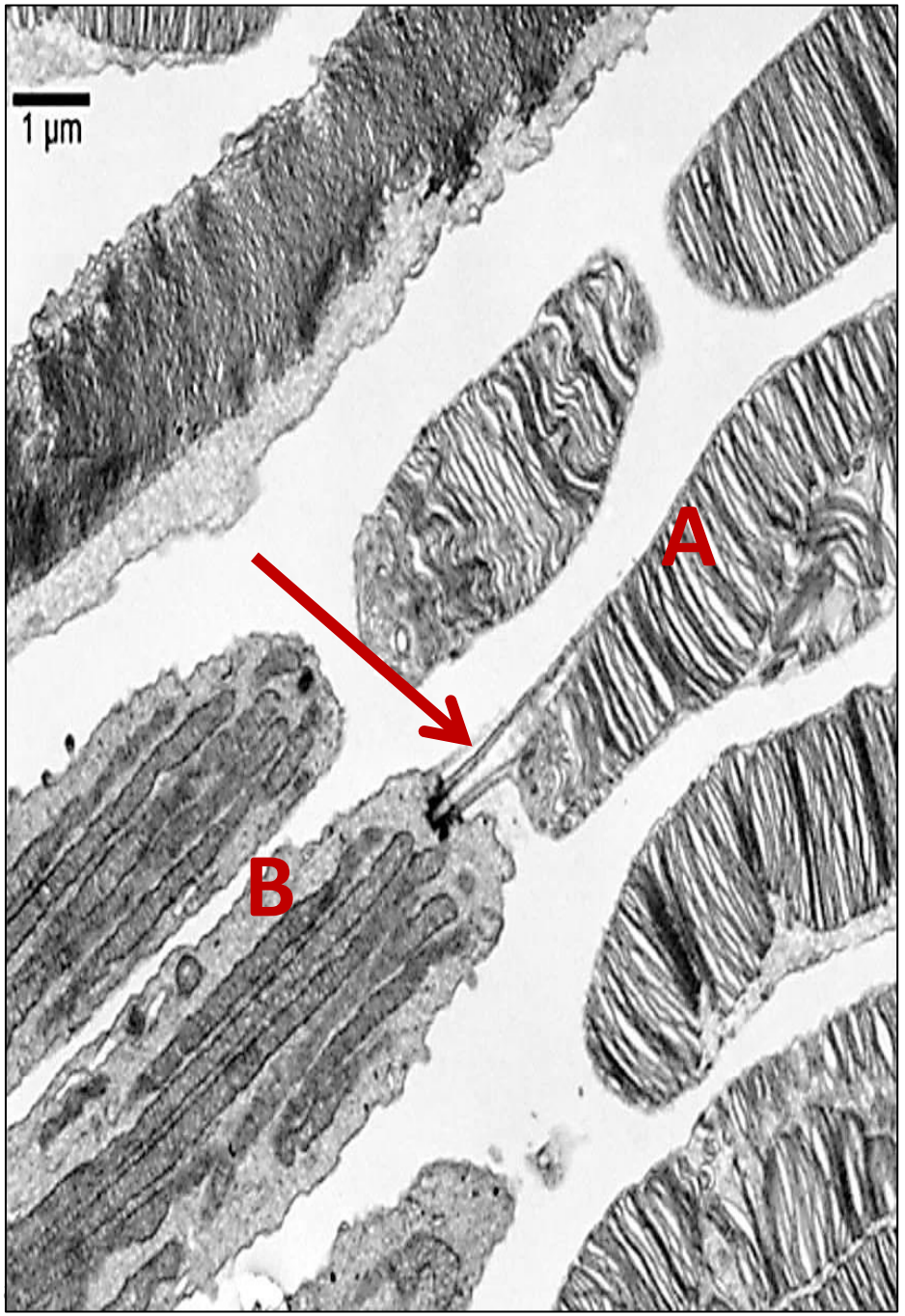


Outer segment of photoreceptors

Retinal pigmented epithelium (RPE)



TEM of retina showing <u>photoreceptor (Rod):</u>
(A) outer segment
(arrow) Cilium
(B) inner segment

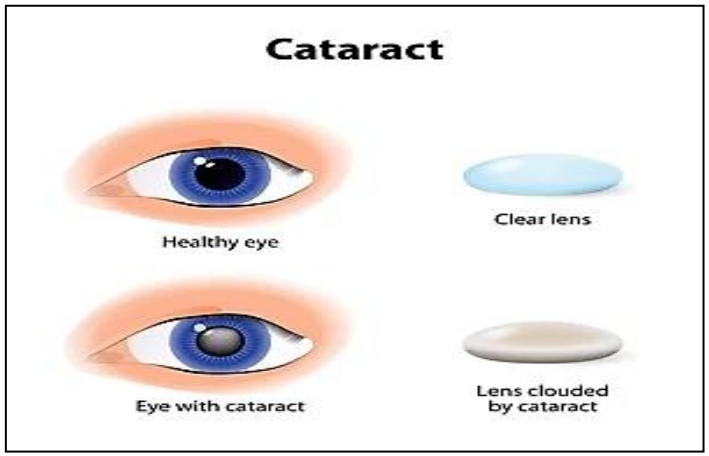


Ciliary epithelium:

Composed of two layers of cuboidal epithelium.

Ciliary Body & process

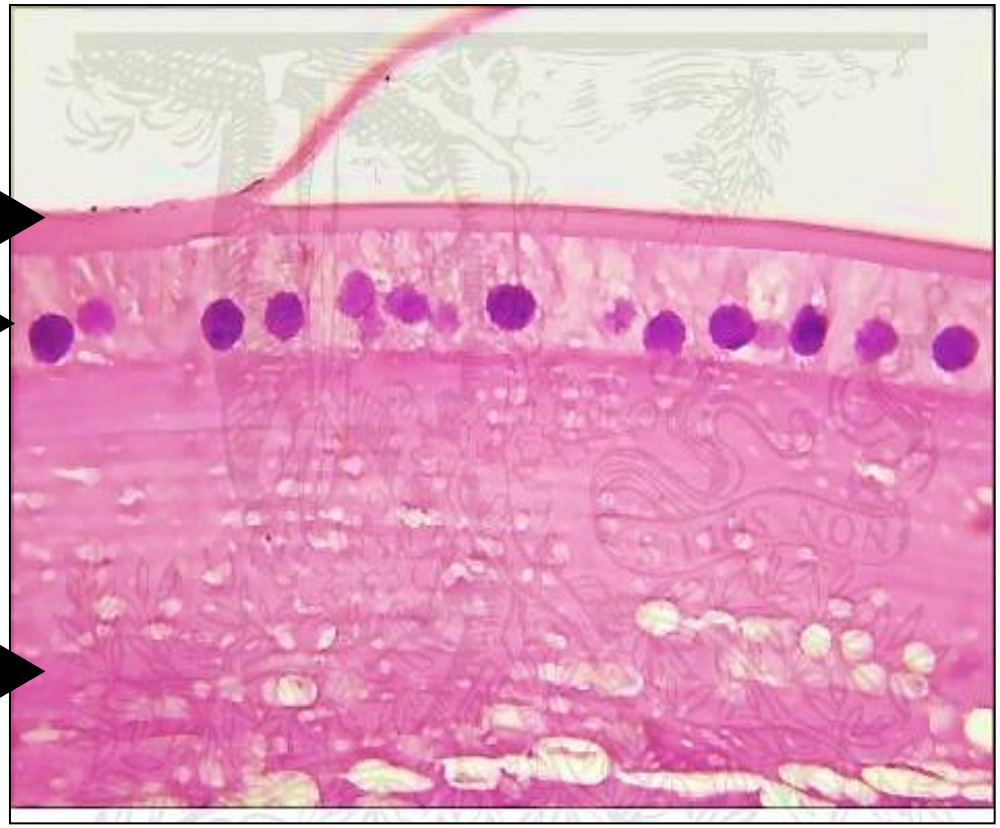
Lens



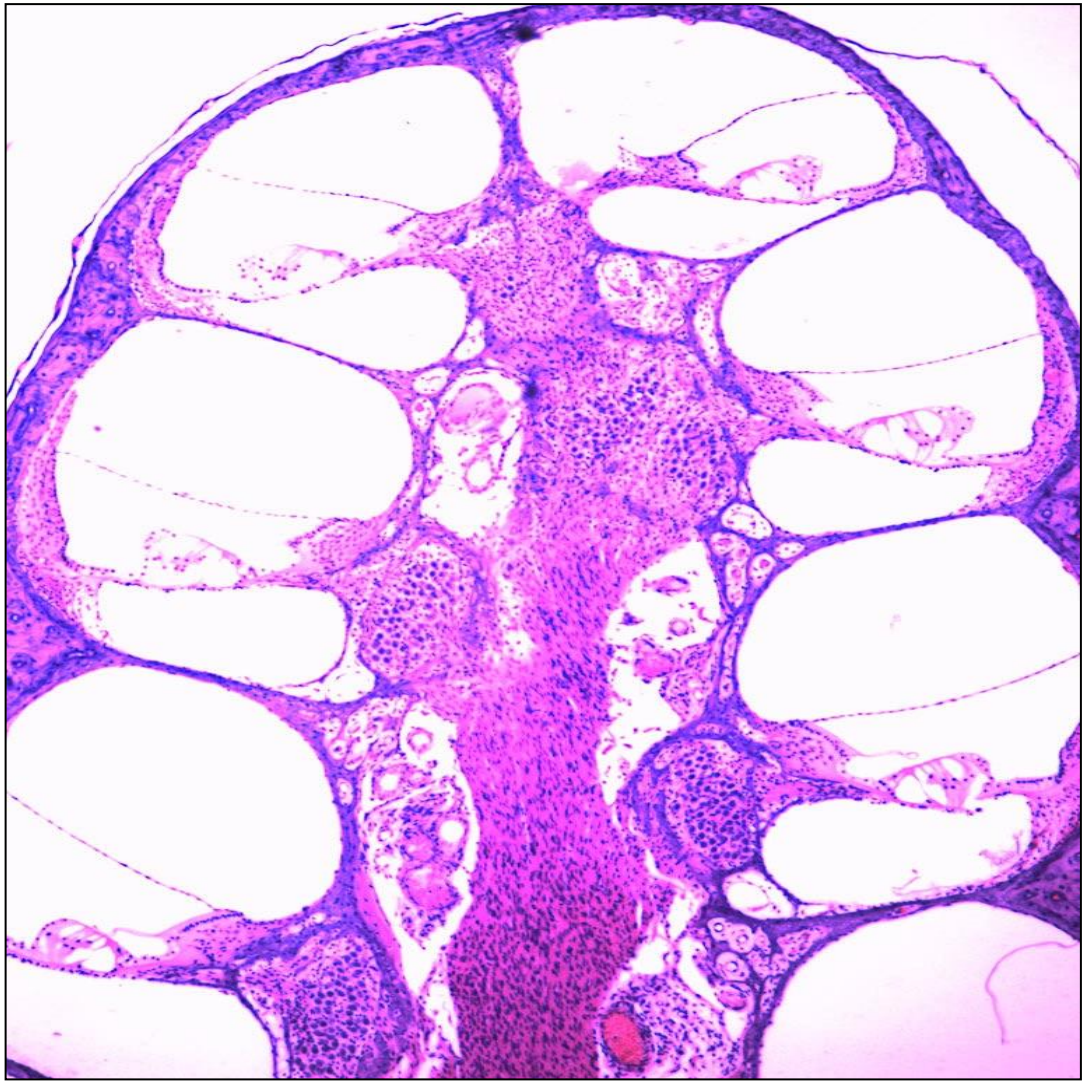
Lens capsule

Lens epithelium

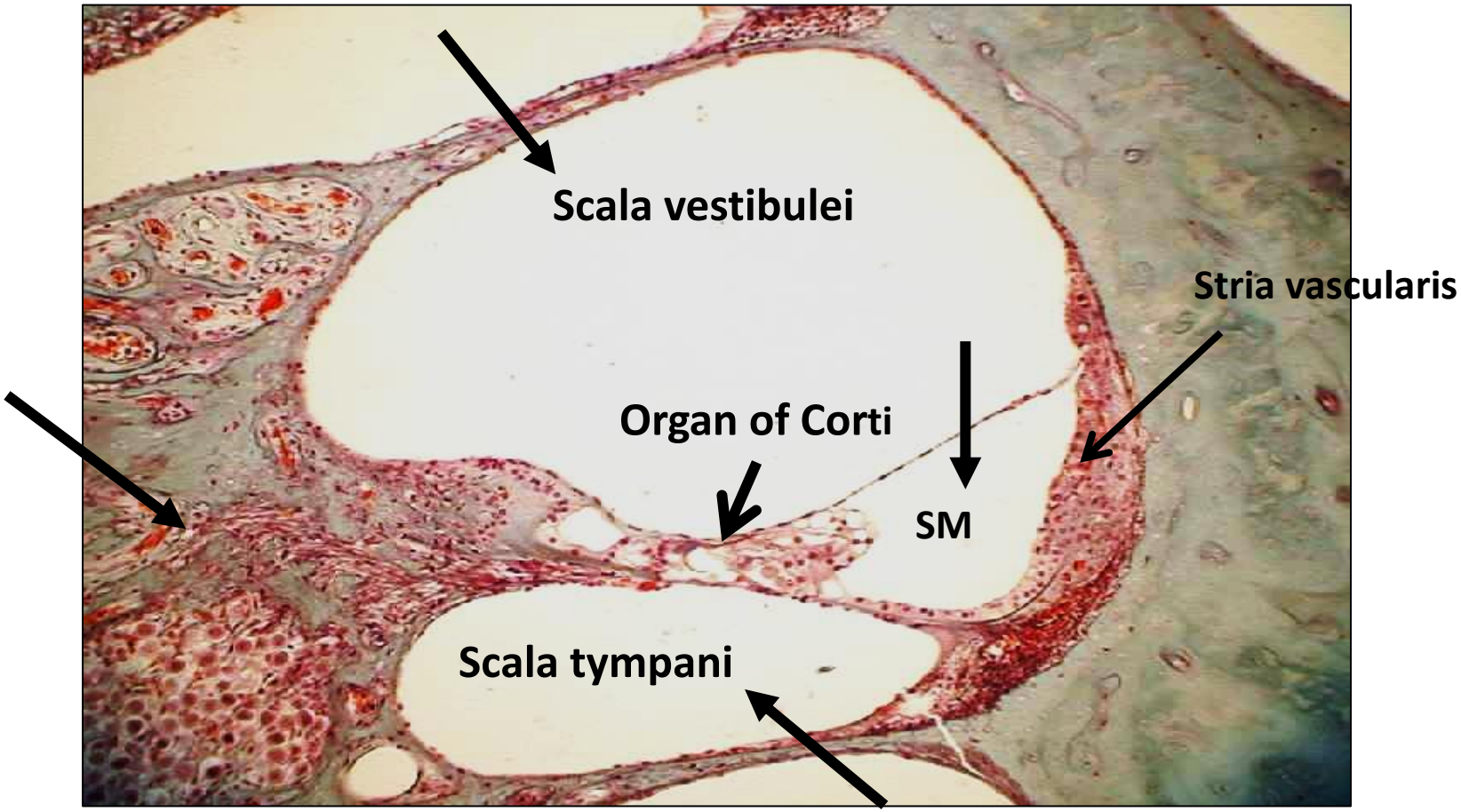
Lens fibers



The cochlea



The cochlea – organ of Corti



1- Scala vestibule
2- Scala tympani
3- Scala media (SM) = cochlear duct
4- organ of Corti
5- stria vascularis
6- Modilous

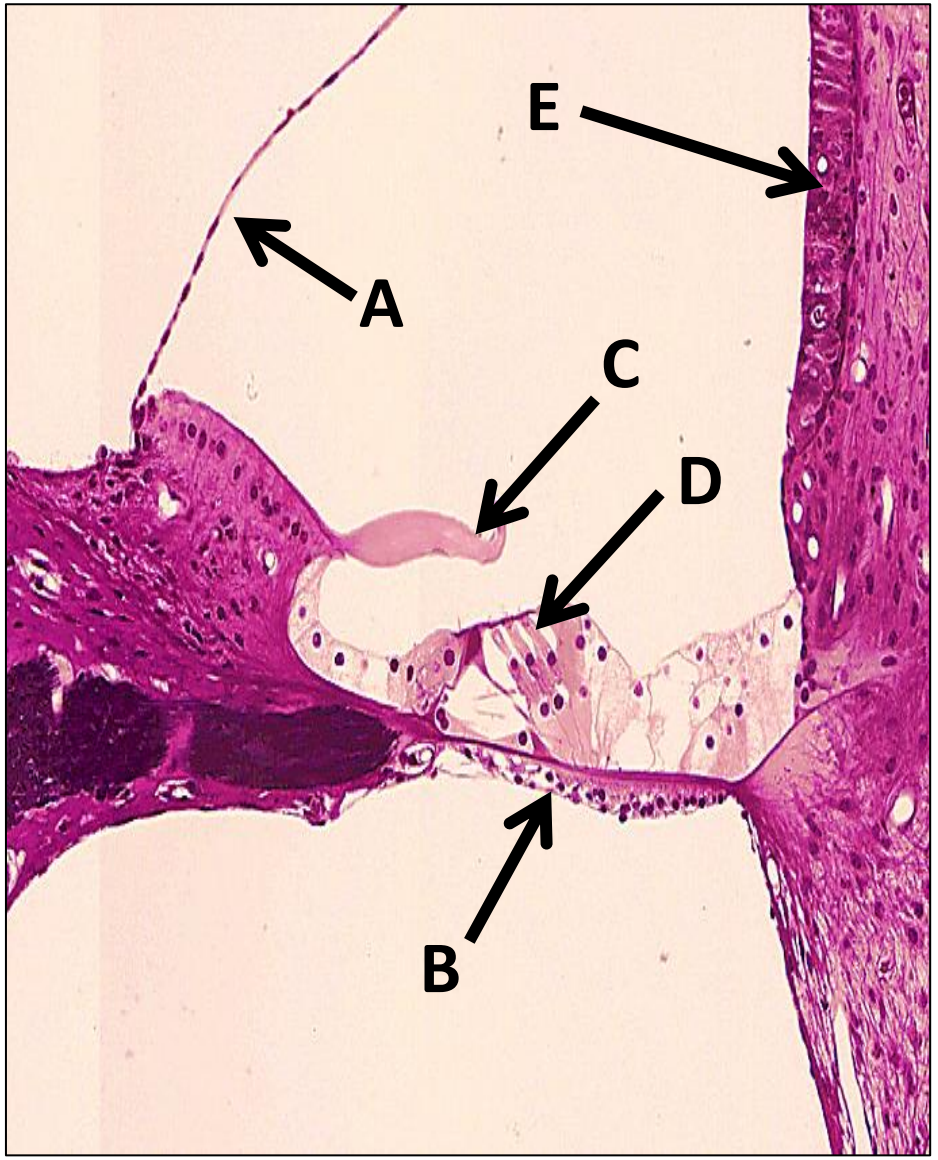
A: Vestibular membrane

B: Basilar membrane

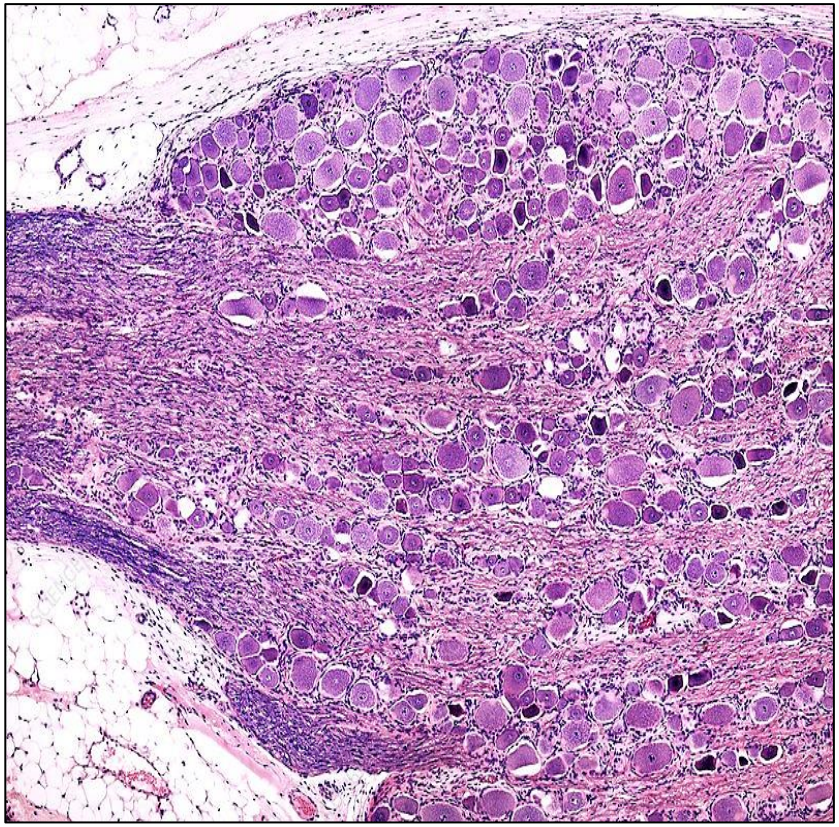
C: Tectorial membrane

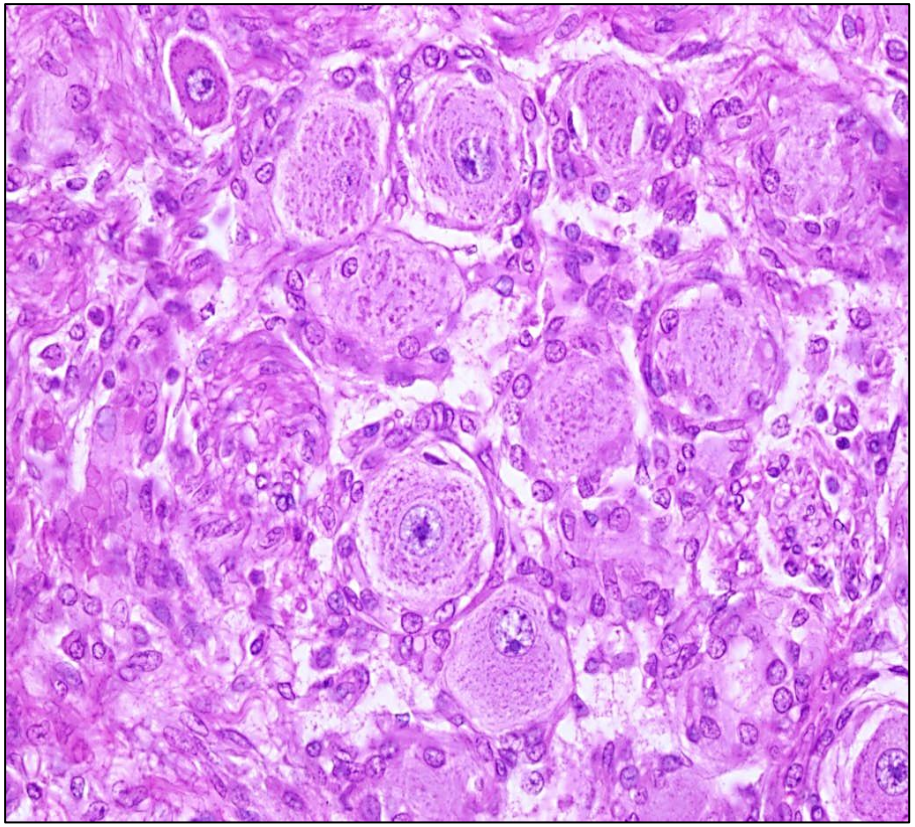
D: Outer hair cells

E: Stria vascularis



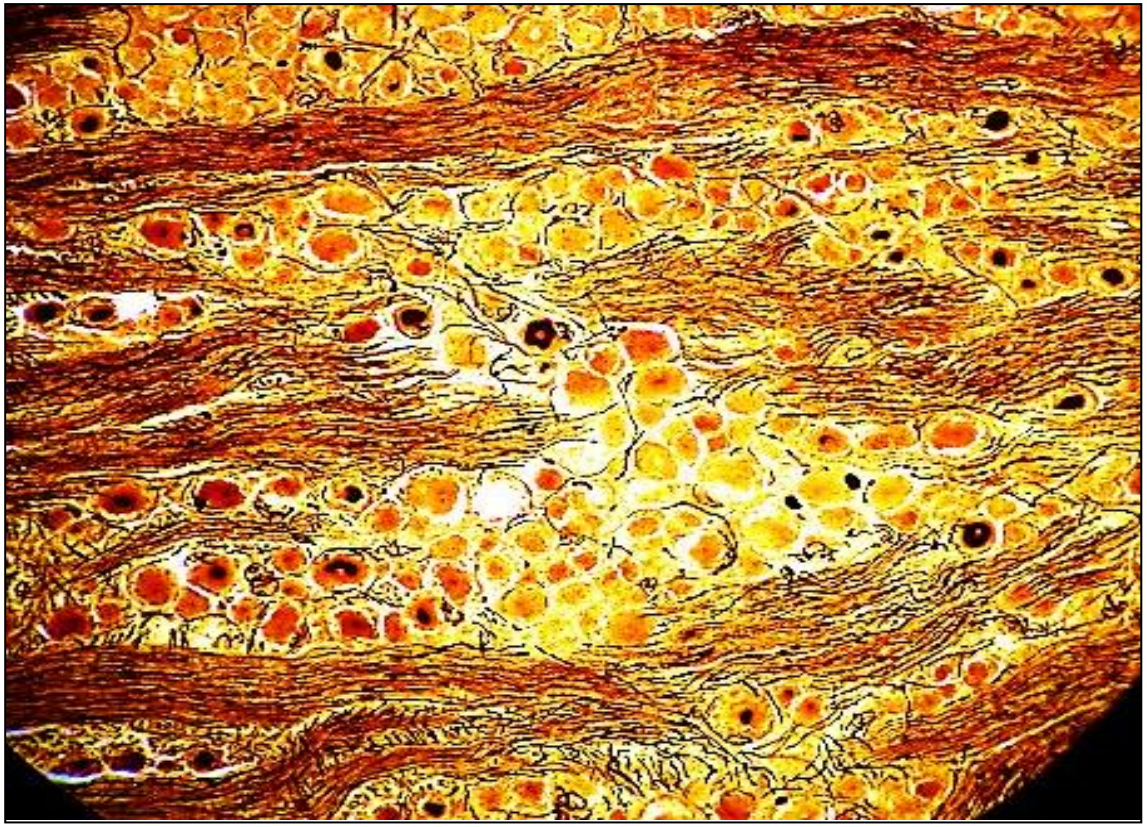
The spinal ganglion (H&E)





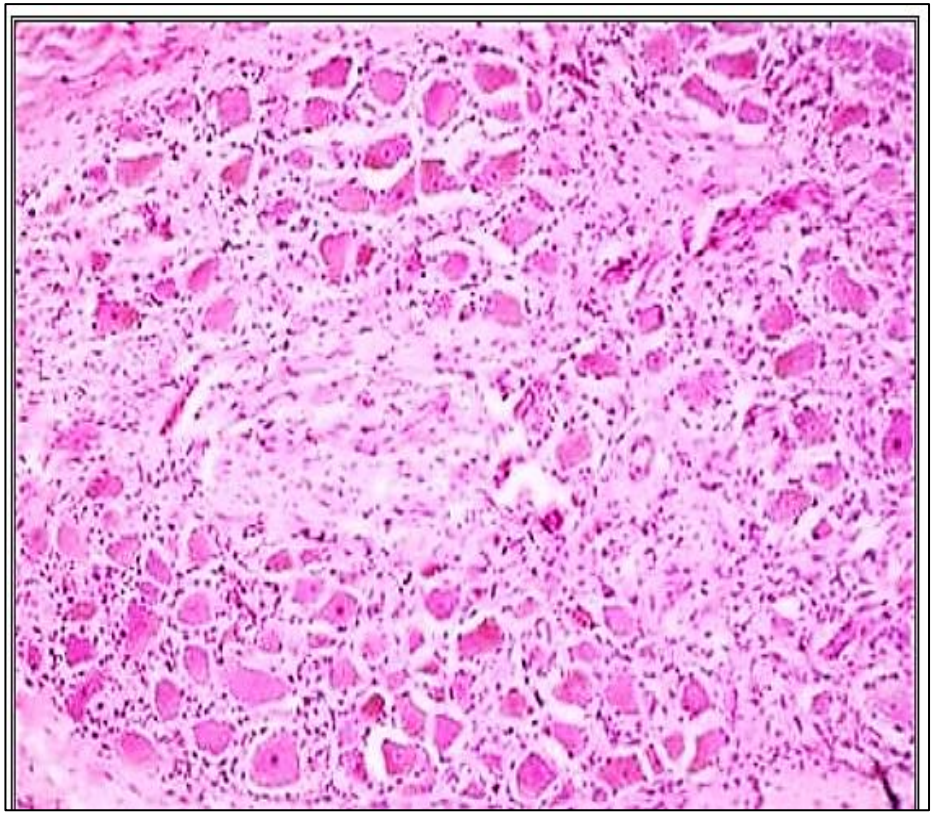
1- nerve cells are rounded (unipolar) & present in rows
2- nuclei central
3-Myleinated nerve fibers
4- Satellite cells surround each nerve cell body

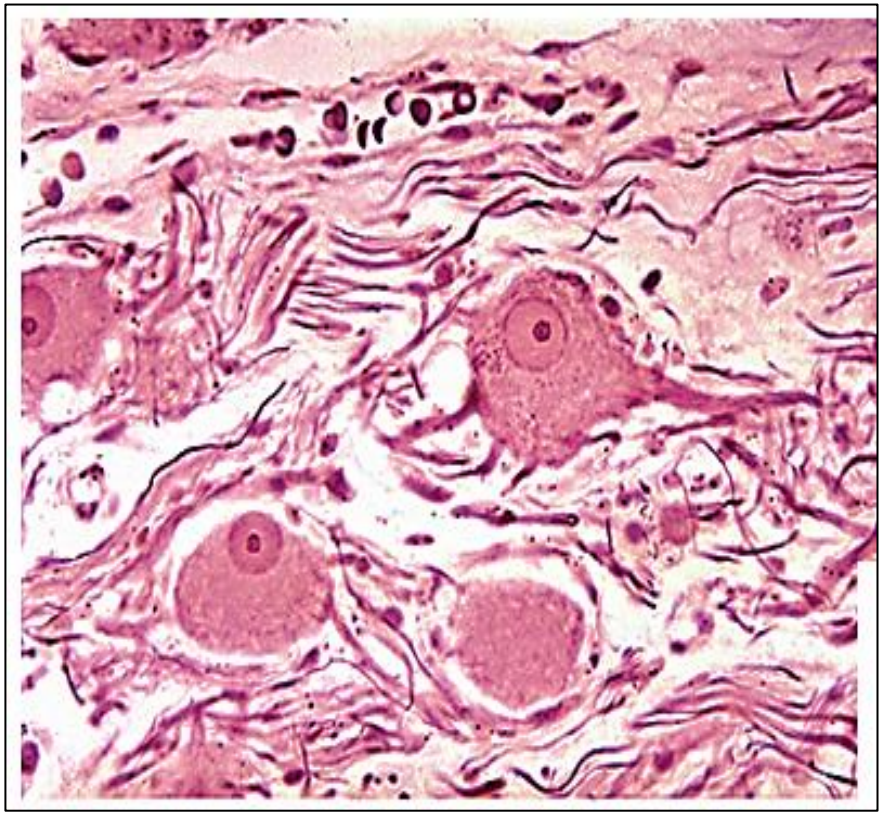
The spinal ganglion (sliver)



1- nerve cells are rounded (unipolar) & present in rows
2-Myleinated nerve fibers

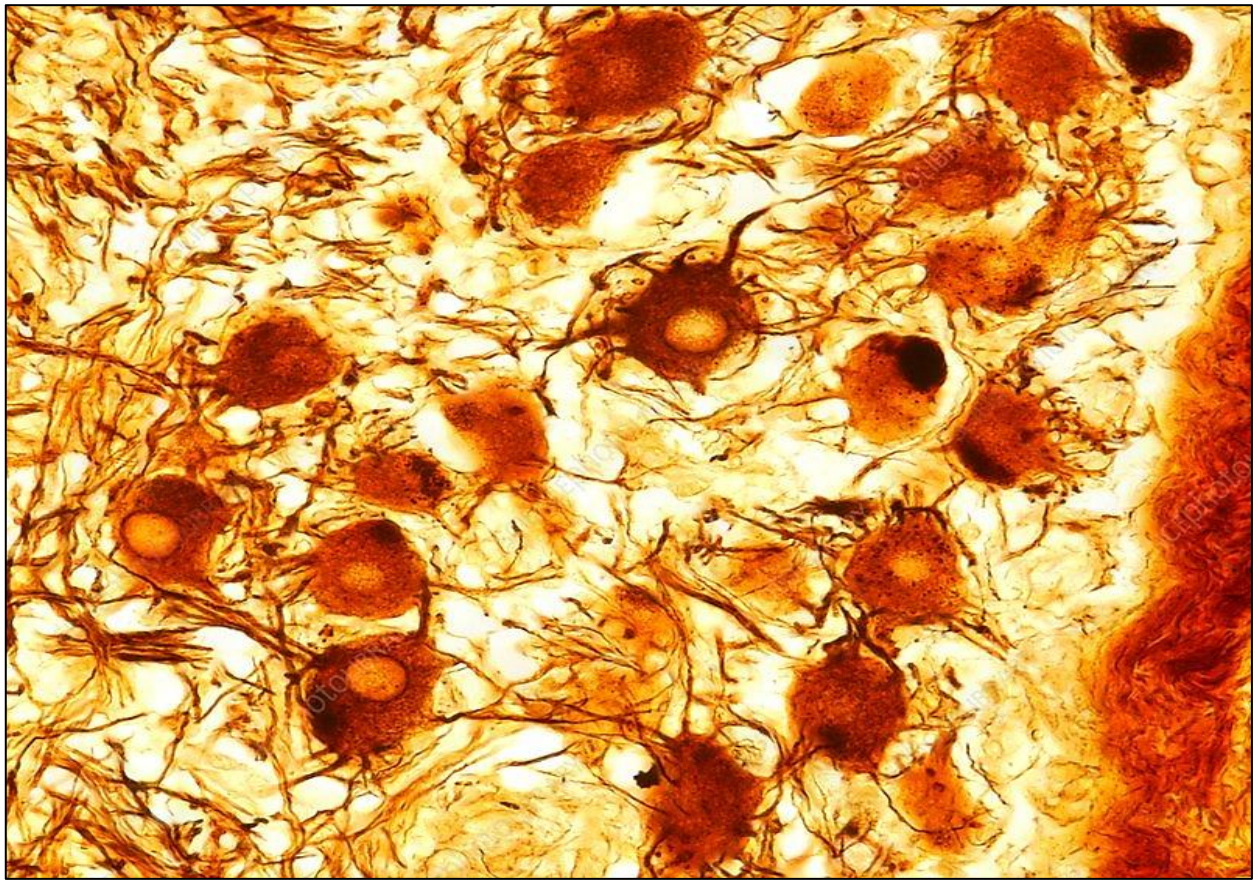
Sympathetic ganglion (H&E)





1- nerve cells are multipolar and scattered
2- nuclei are eccentric
3- few satellite cells

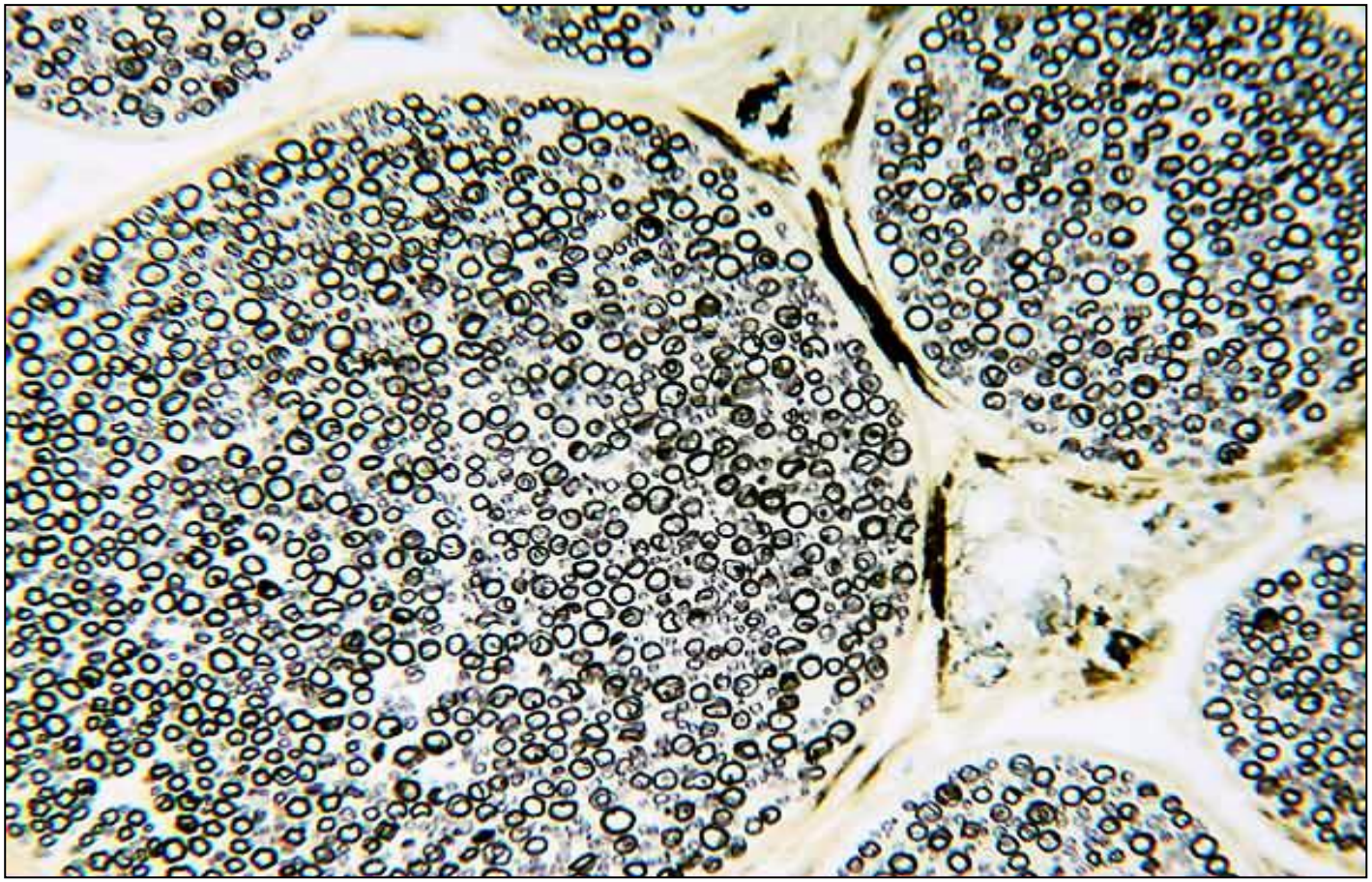
Sympathetic ganglion (sliver)



1- nerve cells are multipolar and uneven

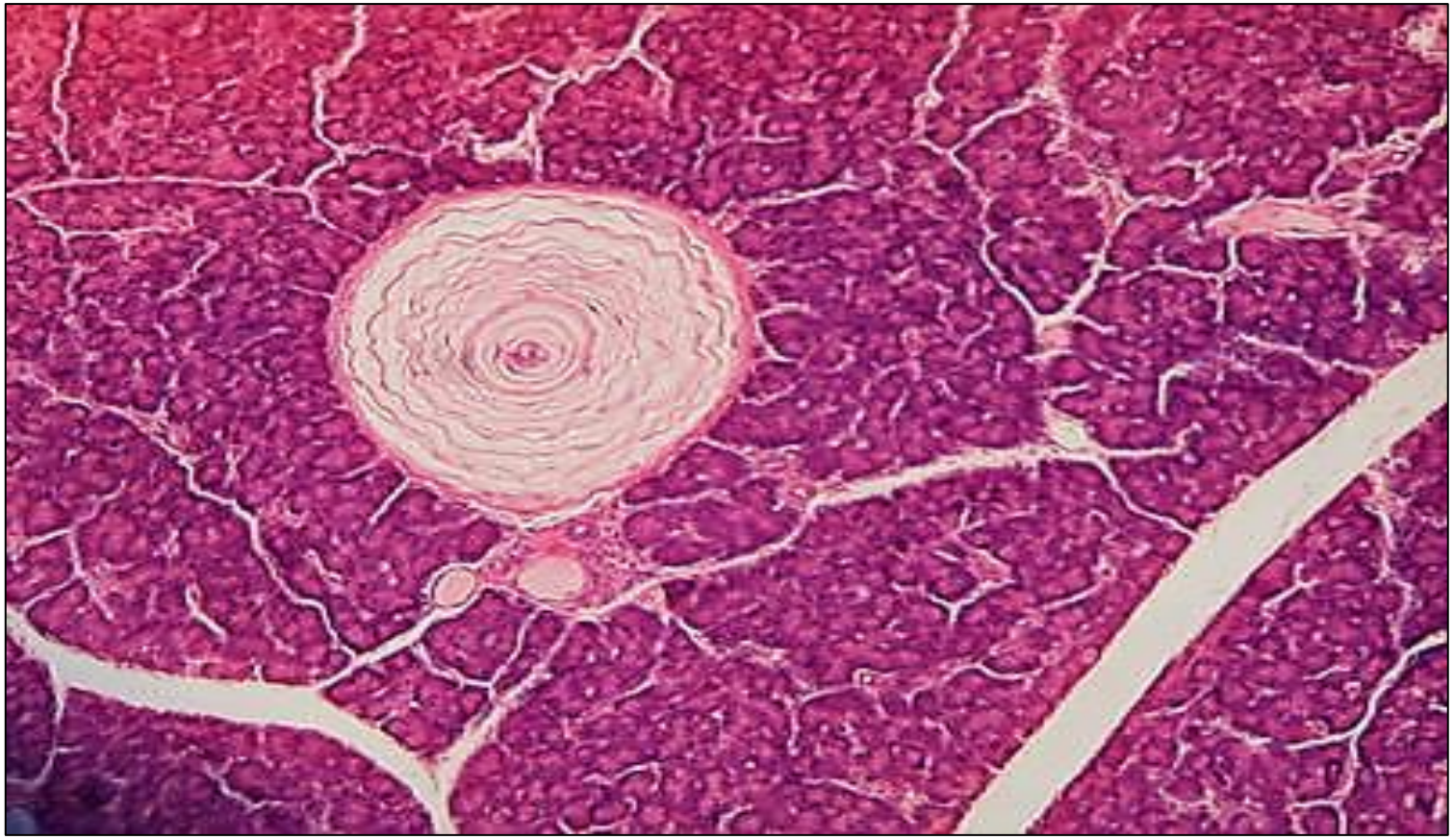
2- nerve cells are scattered

Nerve trunk(Osmic acid)



Myelin sheath stained black

Pacinian corpuscle

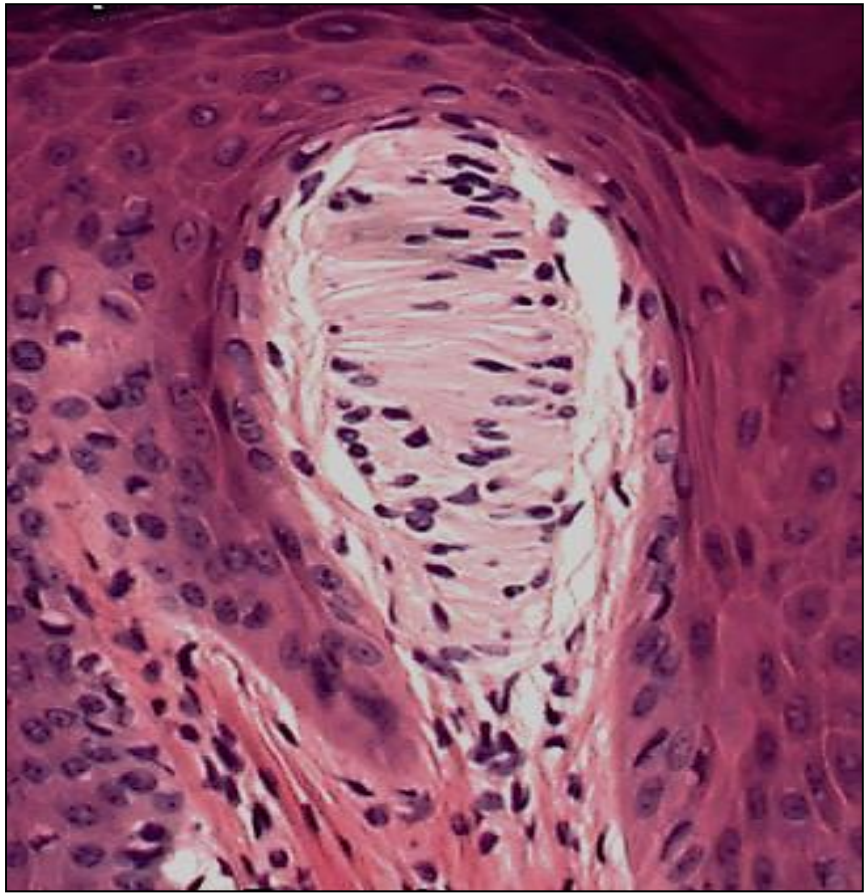


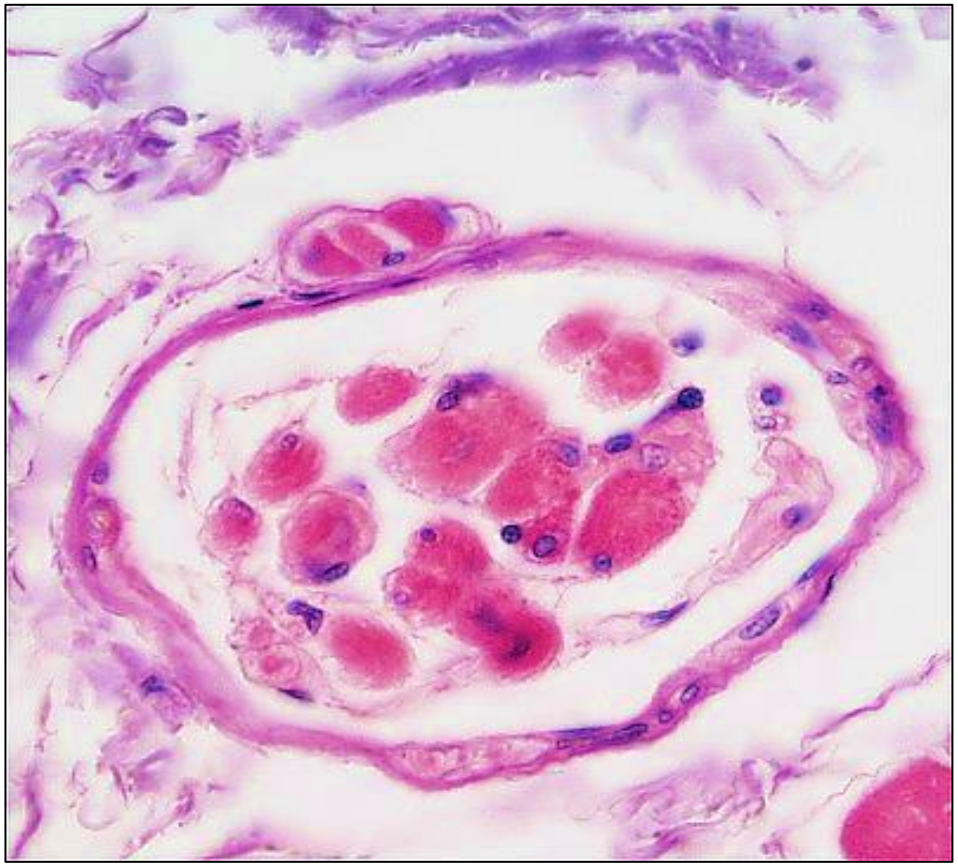
1- Large oval structure

2- concentric layers of Schwan like cells

Meissner's corpuscles

1- Oval structures
2- found at the dermal papillae of skin





Muscle spindle

Crista ampullaris

Taste buds

Thank you